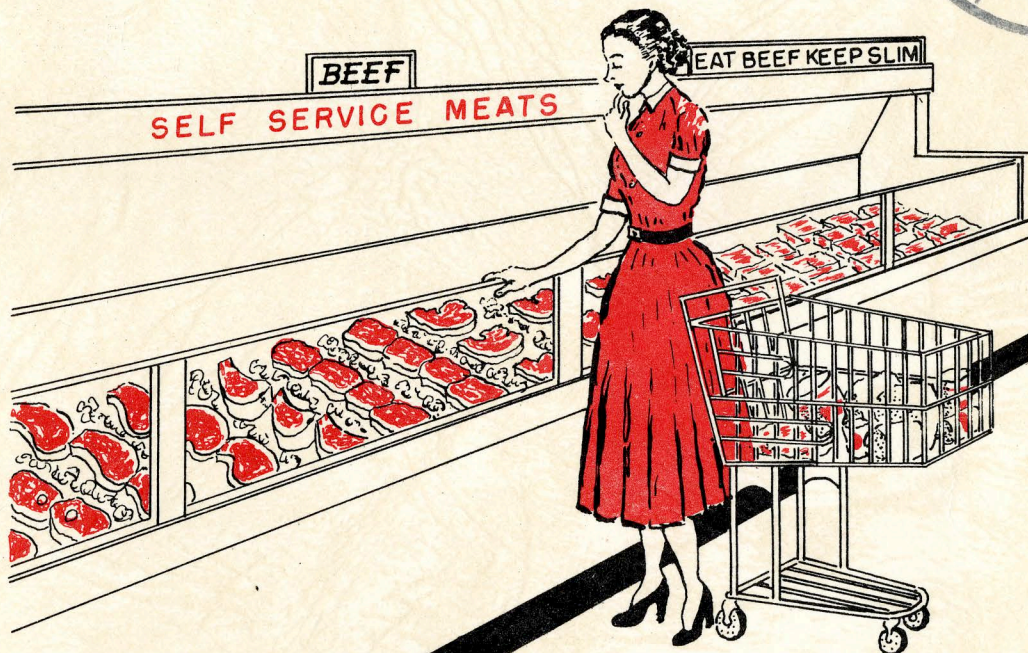
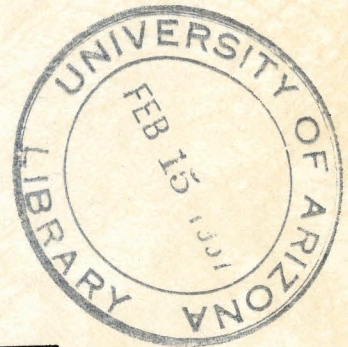


# Consumer Acceptance of Beef

A CONTROLLED RETAIL STORE EXPERIMENT

PHOENIX ARIZONA, 1956



AGRICULTURAL EXPERIMENT STATION  
UNIVERSITY OF ARIZONA, TUCSON



CONSUMER ACCEPTANCE OF BEEF

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by

George W. Campbell

Agricultural Experiment Station

University of Arizona

## CONSUMER PREFERENCE FOR BEEF RETAIL STORE PHASE

### SUMMARY AND CONCLUSIONS

1. When offered a selection of beef roasts (chuck) and steaks (T-bone and club) of U.S. Choice, U.S. Good, and U.S. Commercial grades -- with all grade identifications removed and all grades priced the same as U.S. Choice-- the 1,104 consumers contacted in this study bought relatively more beef of Commercial and Good grade than they did of Choice.
2. The leaner, Commercial grade beef, was preferred over the more highly finished Choice and Good grades regardless of the consumer's age, education, length of residence in Phoenix, or the area lived in before coming to Phoenix.
3. In single purchases consisting of two or more packages, consumers bought combinations of grades twice as often as they bought all packages of the same grade.
4. Practically all buyers discriminated heavily against fat -- both exterior and interior.
5. Selection factors considered most desirable were: (1) smallest total cost or size of the roast or steak consistent with needs of the consumer's family, (2) the small amount of bone (roasts), large tenderloin (steaks), and (3) small fat exterior. These accounted for 71.1 per cent of all (2,397) reasons given by consumers for selecting the roast(s) or steak(s) which they bought. Consumers of each grade of beef were about equally satisfied with the eating qualities of their roasts or steaks. Satisfaction was high for all three grades.
6. The most important desirable characteristics of the beef for eating satisfaction were: (1) tenderness, (2) tastiness, and (3) juiciness.
7. The most important undesirable characteristics were: (1) toughness, (2) dryness, and (3) no flavor.
8. Consumers of roasts and steaks of each three grades rated their beef practically equal in respect to the characteristics mentioned in 6 and 7 above.
9. Consumers contacted had a very limited knowledge of official USDA beef grades. Only 15.8 per cent named as many as three grades, while 58.4 per cent were unable to name even one USDA grade. Of the grades named, U.S. Choice was most commonly named, followed by U.S. Good, and U.S. Prime.
10. The greater the consumer's income or education, the more knowledge they had about USDA grades. However, consumers under 40 years of age knew more about USDA beef grades than consumers over 40 years old.

11. Less than one-third of the 791 consumers answering the questions on USDA grades said they used USDA grades as a guide in buying beef.
12. The chief limitation to this study is that results obtained are from single purchases by the consumers contacted -- and not from a continuing series of purchases over a sufficient period of time to establish continuity in consumer purchasing and consumption preferences. To take a case in point -- although this study shows that consumers bought more U.S. Commercial grade beef than Choice or Good, and that as many were satisfied with Commercial as with Choice and Good, there is no justification for concluding that day in and day out, purchase after purchase, these same preference patterns will hold true.
13. This study does, however, emphasize the need of further research to determine preference patterns for beef over a long enough period sufficient to establish their continuity in time.



## CONSUMER PREFERENCE FOR BEEF RETAIL STORE PHASE

Phoenix, Arizona  
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George W. Campbell, Jr., 1/

This study represents the second phase of a project concerned with consumer preferences for beef in Phoenix, Arizona. The first phase involved a house-to-house survey using personal interviews with the consumers contacted, 2/. The questions asked in the first phase were designed to gain knowledge of the consumers', (1) preferences regarding type of meat, poultry or fish, (2) preferences regarding purchasing habits -- also actual purchasing habits, (3) preferences and ideas concerning beef quality, (4) beef preparation and beef cookery, (5) frequency of use of cuts of beef and beef products, and (6) recognition of beef promotion slogans.

The primary purpose of Phase Two was to gain knowledge about consumers' preferences for various qualities of beef under actual purchase and consumption conditions. A secondary purpose was to check the results of Phase Two with those of Phase One, comparing what people said they would do with what they actually did in purchasing beef.

This study reports on, (1) purchases of 1,104 buyers of selected cuts of beef from the self-service counters of certain Phoenix, Arizona retail food markets, what the consumers bought, how much they bought, and why they bought; (2) the degree of satisfaction experienced by those buyers interviewed after the meat they bought had been consumed, and the reasons for the satisfaction; and (3) the consumers knowledge and use of USDA beef grades, 3/

The study was planned and carried out in such a way as to interfere as little as possible with normal retail selling and buying procedures.

The roasts (chuck) and steaks (T-bone and clubs) used in the study were cut, trimmed, wrapped, and displayed in the self-service meat counters in conformity with the usual practices of the cooperating markets. Special care was taken to insure uniformity in thickness of all steaks and roasts so that thickness would not be a major selecting factor. Roasts and steaks were cut from specially selected chucks and short loins of three USDA beef grades, U.S. Choice, U.S. Good, and U.S. Commercial.

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1/ Dr. Campbell was a member of the Department of Agricultural Economics, University of Arizona, when this study was made. Currently he is Extension Agricultural Economist at the University of Arizona.

2/ See University of Arizona Experiment Station Bulletin 267, "Consumer Preference for Beef." A summary of the findings in that earlier study is appended to this present paper.

3/ We wish to express our appreciation to the A. J. Bayless Markets for their splendid cooperation throughout the course of this study.

Selections were made as nearly as possible in the middle of each grade, although care was taken to have the fat color of Commercial as nearly white or creamy as that of Choice and Good so that color of the fat would not be a major selecting factor.

All grade labels were trimmed from the meat.

All grades were priced the same. Prices were consistent with regular store-pricing policy for USDA Choice. Steak prices during the period of the study ranged from 99c to \$1.09 per pound, and roast prices from 35c to 43c per pound.

Steaks averaged about 11 ounces each, while the roasts had an average weight of about 4 pounds.

A coded identification tag for each of the three grades was placed in the bottom of each package in such a way as to be visible when the package was turned bottom side up.

All roasts and steaks of all three grades were displayed for sale in the numbers and manner consistent with accepted sampling procedures. However, the displays appeared no different to the buyers than the usual displays of the store.

The interviewer stayed in the background until the purchase was completed, and only then contacted the buyer and asked the questions listed on the store interview sheet.

The interviewer recorded the cut and grade of the meat bought, the sex of the person that actually selected the meat and asked the reasons for selecting that particular cut from among all other cuts of the same kind in the display case. The reasons (small bone, small exterior fat, dark color, etc.) were recorded in the order given by the buyer.

If the buyer was willing to cooperate further, an appointment was made for a later interview to be taken after the meat had been prepared and eaten. A total of 885 consumers cooperated by answering all or part of the questions of the follow-up-home interview.

The home-interview questionnaire was designed to gain knowledge about the consumer's (1) present and former residences, (2) family size, (3) ages, (4) education, (5) income, (6) beef cookery and preparation, (7) satisfaction with the meat they bought and consumed, (8) reasons for their satisfaction ratings, and (9) knowledge and use of official USDA beef grades.



## MOST CONSUMERS SELECTED LEAN BEEF

That most consumers preferred lean beef is shown in the analysis of what consumers bought, why they bought, and the degree of satisfaction they experienced after consuming the "experimental" beef they had bought.

### U.S. Commercial Beef Was Selected Over U.S. Choice or U.S. Good

Analysis of purchases of 1,417 roasts and steaks shows that 41 per cent of the packages bought were Commercial, 31 per cent were Choice, and 28 per cent were Good (Table 1). It, therefore, appears that the lesser finished beef was preferred over the more highly finished. Since the experimental short loins and chucks selected were of nearly equal weights we can assume that the above percentages apply to weights as well as packages.

Roast Consumers bought more Commercial grade beef than Choice or Good -- more Choice than Good. Of the 921 roasts bought, 42,3 per cent were Commercial, 32,5 per cent were Choice, and 25,2 per cent were Good (Table 1).

Steak Consumers also bought more Commercial than Choice or Good, but more Good than Choice. Of the 496 steaks bought, 38,1 per cent were Commercial, 33,3 per cent were Good, and 28,6 per cent were Choice (Table 1).

Commercial Grade Beef was preferred over Choice and Good regardless of the consumers' age, education, length of residence in Phoenix, or where they had lived before coming to Phoenix. Contrary to what might be expected, consumers who had lived in the Midwest before coming to Phoenix showed the strongest preference for Commercial beef. Of the 211 consumers previously living in the Midwest, 48,8 per cent bought Commercial, 28,9 per cent bought Choice, and 22,3 per cent bought Good. On the other hand, consumers from the West showed the least degree of preference for Commercial. Of the 222 consumers previously living in the West, 38,7 per cent bought Commercial, 33,8 per cent bought Choice, and 27,5 per cent bought Good.

Table 1. Number of Packages of USDA Choice, Good, and Commercial Beef Roasts and Steaks Bought by Phoenix Consumers

Grade	<u>Roasts</u>		<u>Steaks</u>		<u>Total</u>	
	Packages	%	Packages	%	Packages	% of total
U.S. Choice	299	32,5	142	28,6	441	31,1
U.S. Good	232	25,2	165	33,3	397	28,0
U.S. Commercial	390	42,3	189	38,1	579	40,9
Total	921	100,0	496	100,0	1,417	100,0

### Multi-Package Purchases Are Usually Multi-Grade

Most Roast Consumers (94.8 per cent) bought one roast at a time. The buyers of two or more roasts at a time bought combinations of grades more often than roasts of the same grade. Of 45 multi-package-roast purchases, less than half (37.8 per cent) were all of a single grade, the remaining being combinations of Choice, Good, and Commercial grades.

Most Steak Consumers (62 per cent) bought two or more steaks at a time, but the average purchase was about two steaks per consumer. Of 244 steak consumers, 38 per cent bought one steak, 39 per cent bought two steaks, and 23 per cent bought three or more steaks at the same time. Of the 95 two-steak purchases, over one half (58 per cent) were of two grades and 42 per cent of a single grade. Of the 56 consumers who bought three or more steaks at a time, 55 per cent bought steaks of two grades, 31 per cent bought steaks of all three grades, and only 14 per cent bought all steaks of the same grade.

### Why Consumers Selected the Packages They Bought

A Small Amount of Exterior Fat and Small or Medium Amounts of Marbling were definitely desired by Phoenix consumers contacted in this study. Of 2,397 reasons given by consumers for selecting the beef they bought, only 13 or .5 per cent were because of a large amount of exterior fat (even this was relative since the butchers trimmed roasts and steaks so there was as little difference as possible in thickness of outside fat) and only 60 or 2.5 per cent were because of a large amount of marbling (Table 2).

Total Cost or Size, on the other hand, accounted for 24.5 per cent of the total reasons given, making it the most important of all selection factors used by consumers in buying beef. This is underscored by the fact that an even greater percentage (34.6 per cent) of all (1,068) first reasons given were because of total cost or size of the package bought.

Small Amount of Bone was the second most important factor in selecting roasts. This factor accounted for 18.8 per cent of the total number of reasons given for selecting roasts, and 17.8 per cent of all (829) first reasons.

Large Tenderloin was the second most important factor in selecting steaks. This factor accounted for 12.3 per cent of the total number (527) of reasons given for selecting steaks, and 18.4 per cent of all (239) first reasons.

Small Fat Exterior was the third most important selection factor for both roast and steak buyers, accounting for 15.5 per cent of all reasons (2,397) and 16.5 per cent of all first reasons (1,068).

Small Amount of Marbling constituted 8.3 per cent of the total number of reasons for selecting the meat bought.



Table 2. Factors Determining Consumers' Selections of Purchased Roasts and Steaks

Selection factor	Mentioned First		Mentioned Second		Mentioned Third		Mentioned but no order recorded		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
Total cost and/or size	370	34.6	121	14.7	94	24.9	3	2.4	588	24.5
Small amount of bone (roasts)	147	13.8	142	17.2	53	14.0	9	7.1	351	14.6
Small amount of bone (steaks)	8	.7	12	1.5	4	1.1	2	1.6	26	1.1
Large Tenderloin (steaks)	44	4.1	17	2.1	3	.8	1	.8	65	2.7
Small fat ext.	176	16.5	124	15.0	48	12.7	24	19.1	377	15.7
Small amt, marb.	39	3.7	108	13.1	39	10.3	14	11.1	200	8.4
Total of above six factors	784	73.4	524	63.6	241	63.8	53	42.1	1607	67.0
Med, fat ext.	25	2.3	41	5.0	15	4.0	2	1.6	83	3.5
Lge, fat ext.	3	.3	4	.5	2	.5	4	3.2	13	.5
Med, amt, marb.	83	7.8	86	10.4	20	5.3	9	7.1	198	8.3
Lge, amt, marb.	16	1.5	24	2.9	7	1.9	13	10.3	60	2.5
White fat color	7	.6	5	.6	4	1.1	13	10.3	29	1.2
Med, fat color	8	.7	7	.8	5	1.3	2	1.6	22	.9
Yellow fat color	--	---	1	.1	--	---	4	3.2	5	.2
Dk, lean color	24	2.3	16	1.9	10	2.6	12	9.5	62	2.6
Med, lean color	27	2.5	36	4.4	28	7.4	10	7.9	101	4.2
Lgt, lean color	19	1.8	12	1.5	12	3.2	1	.8	44	1.8
Med, amt, of bone	6	.6	5	.6	2	.5	2	1.6	15	.6
Lge, amt, of bone	--	---	1	.1	--	---	--	---	1	---
Other	66	6.2	63	7.6	32	8.4	1	.8	162	6.7
Total	1068	100.0	825	100.0	378	100.0	126	100.0	2397	100.0

Medium Amount of Marbling also constituted 8,3 per cent of the total number of reasons for selecting the meat bought,

Color of Lean was not considered as a very important selection factor. However, since the meat had not been specially selected as to color, the range offered was not very great, but in conformity with the range usually offered in the cooperating markets.

Medium Lean Color accounted for 4,2 per cent, Dark Lean Color for 2,6 per cent and Light Lean Color for 1,8 per cent of all reasons given by consumers for selecting roasts and steaks,

Color of Fat was considered even less important, in the narrow range offered, than was the color of the lean. Preference for White Fat accounted for 1,2 per cent of all reasons for selecting, Medium Colored Fat for ,9 per cent and Yellow Colored Fat (actually the most yellow fat was really more cream colored than yellow) for ,2 per cent.

The most important selection factors in buying roasts and steaks -- Total Cost and Size, Small Amount of Bone (roasts), Large Tenderloin (steaks), and Small Fat Exterior, together with Small Amount of Marbling, account for almost two-thirds (65,7 per cent) of all selection factors given by the Phoenix consumers contacted,

## CONSUMERS' SATISFACTION

Satisfaction Ratings, both descriptive and numerical were obtained after the consumers had eaten the roasts and steaks. The ratings were recorded during the home interview. One question asked was "Did your family find this meat to be -- 'Excellent,' 'Good,' 'Poor,' 'Satisfactory,' 'Slightly Undesirable,' 'Unsatisfactory?'" The answers were recorded, then the consumers were asked "Why did you find it so?" These answers ("it was tender, juicy, dry," etc.) were recorded in the order given by the consumers. Consumers were also asked to rate their over-all satisfaction with the beef on a numerical scale ranging from 1 (which meant that particular roast or steak was as good as the best roast or steak of its kind the consumer had ever prepared and eaten) to 9 -- with the 9 rating reserved for the steak or roast that was as poor as the worst steak or roast of that particular kind the consumer had ever prepared and eaten.

In both the descriptive and numerical methods of rating their satisfaction, the consumers expressed high degrees of satisfaction irrespective of the grades of beef bought.

Of 885 consumers giving descriptive satisfaction ratings, 94,9 per cent rated their roasts or steaks as "Excellent," "Good," or "Satisfactory" (Table 3).

Of 351 consumers of U.S. Commercial grade beef, 96,1 per cent rated their roasts or steaks as "Excellent," "Good," or "Satisfactory." Of 269 consumers of U.S. Choice, 94,8 per cent gave the above ratings, while of 234 consumers of U.S. Good beef, 93,2 per cent gave the above ratings for their roasts or steaks.



Table 3. Consumers' Descriptive Satisfaction Ratings of Prepared Roasts and Steaks

Descriptive rating	Consumers rating U.S. Choice		Consumers rating U.S. Good		Consumers rating U.S. Commercial		Total	
	Number	%	Number	%	Number	%	Number	%
Excellent	110	40.9	104	41.4	131	35.9	345	39.0
Good	115	42.8	113	45.0	195	53.4	423	47.8
Satisfactory	30	11.1	17	6.8	25	6.8	72	8.1
Subtotal	255	94.8	234	93.2	351	96.1	840	94.9
Poor	5	1.9	5	2.0	5	1.4	15	1.7
Slightly undesirable	3	1.1	4	1.6	4	1.1	11	1.2
Unsatisfactory	6	2.2	8	3.2	5	1.4	19	2.2
Subtotal	14	5.2	17	6.8	14	3.9	45	5.1
Total answering	269	100.0	251	100.0	365	100.0	885	100.0

Of 883 consumers giving numerical satisfaction ratings, 93.9 per cent rated their roasts or steaks at 5 (average) or better (Table 4),

Of 363 U.S. Commercial-beef consumers, 95.0 per cent rated their roasts or steaks at 5 or better. Of 267 consumers of U.S. Choice grade beef, 94.8 per cent rated their meat 5 or better. Of 253 U.S. Good-beef consumers, 91.3 per cent rated their roasts or steaks at 5 or better.

Consumers' descriptive ratings of roasts and steaks agreed closely with their numerical ratings.

The Reasons for Descriptive Satisfaction Ratings show why consumers rated the roasts or steaks as they did. They also reveal "eating" characteristics that consumers considered important. Consumers rated all meat bought, regardless of cut and/or grade about equal with respect to these characteristics. The very large proportion (91.1 per cent) of desirable (tender, tasty, juicy, etc.) characteristics to undesirable characteristics (tough, no flavor, dry, etc.) supports the earlier statement that over-all consumers satisfaction for all the "experimental" beef was good.

Table 4. Consumers' Numerical Satisfaction Ratings of Prepared Roasts and Steaks

Numerical rating	Consumers rating U.S. Choice		Consumers rating U.S. Good		Consumers rating U.S. Commercial		Total	
	Number	%	Number	%	Number	%	Number	%
1	88	33,0	84	33,2	119	32,8	291	33,0
2	54	20,2	55	21,7	95	26,2	204	23,1
3	57	21,3	46	18,2	82	22,6	185	21,0
4	25	9,4	28	11,1	26	7,1	79	8,9
5	29	10,9	18	7,1	23	6,3	70	7,9
Subtotal	253	94,8	231	91,3	345	95,0	829	93,9
6	5	1,9	11	4,3	11	3,0	27	3,1
7	6	2,2	6	2,4	3	,8	15	1,7
8	--	---	2	,8	2	,6	4	,4
9	3	1,1	3	1,2	2	,6	8	,9
Subtotal	14	5,2	22	8,7	18	5,0	54	6,1
Total	267	100,0	253	100,0	363	100,0	883	100,0

The Most Important Desirable Eating Characteristics of the beef, according to consumers were, tenderness, accounting for 38,3 per cent of all (1,594) reasons given, tastiness, accounting for 34,1 per cent, and juiciness accounting for 14,9 per cent (Table 5). Other desirable characteristics such as "made good gravy," "cut easily," "was not stringy," etc., accounted for 3,8 per cent of all reasons given.

The Most Important Undesirable Eating Characteristics of the beef were, toughness, accounting for 4,3 per cent of all reasons given; dryness, accounting for 1,6 per cent; and no flavor, accounting for ,8 per cent. Other undesirable characteristics such as stringiness, too much gristle, too greasy, etc., accounted for 2,2 per cent of all reasons given (Table 5).

#### ACQUAINTANCE WITH AND USE OF USDA BEEF GRADES

The official United States Department of Agriculture beef grades are: Prime, Choice, Good, Commercial, Utility, and Canner and Cutter. <sup>4/</sup> People interviewed in this survey were asked to name as many of these grades as possible. Only 15,8 per cent of the 791 consumers answering, named as many as three of these grades, 12,3 per cent named two, and 13,5 per cent named one. The remaining 58,4 per cent (462 in number) were unable to name any of these grades (Table 6).

<sup>4/</sup> U.S. Standard has now been added to these official grades.



Table 5. Frequency of Characteristics (Selection Factors) Named by Roast and Steak Consumers as Reasons for Descriptive Satisfaction Ratings, Number Consumers Answering.

Reason	First Reasons								Second Reasons								Third Reasons								Total	
	U.S. Choice		U.S. Good		U.S.Com-merical		Total		U.S. Choice		U.S. Good		U.S.Com-mercial		Total		U.S. Choice		U.S. Good		U.S.Com-mercial		Total			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Tender	140	55.4	122	51.5	179	53.2	441	53.4	49	26.8	47	25.7	54	22.9	150	24.9	5	9.1	6	13.6	8	12.3	19	11.5	610	38.3
Juicy	19	7.5	21	8.9	23	6.8	63	7.6	42	22.9	33	18.0	49	20.8	124	20.6	17	30.9	13	29.6	21	32.3	51	30.9	238	14.9
Tasty	64	25.3	67	28.3	95	28.2	226	27.3	71	38.8	81	44.3	103	43.7	255	42.4	21	38.2	14	31.8	28	43.1	63	38.2	544	34.1
Other desirable	3	1.2	2	.8	5	1.4	10	1.2	10	5.5	9	4.9	14	5.9	33	5.5	6	10.9	7	15.9	4	6.2	17	10.3	60	3.8
Total desirable	226	89.4	212	89.5	302	89.6	740	89.5	172	94.0	170	92.9	220	93.3	562	93.4	49	89.1	40	90.9	61	93.9	150	90.9	1452	91.1
Tough	19	7.5	18	7.6	25	7.4	62	7.5	2	1.1	3	1.6	1	.4	6	.9	--	--	--	--	1	1.5	1	.6	69	4.3
Dry	3	1.2	2	.8	4	1.2	9	1.1	4	2.2	4	2.2	7	2.9	15	2.6	1	1.8	1	2.3	--	--	2	1.2	26	1.6
No flavor	--	--	1	.4	1	.3	2	.2	1	.5	2	1.1	3	1.3	6	.9	3	5.5	--	--	1	1.5	4	2.4	12	.8
Other undesirable	5	1.9	4	1.7	5	1.5	14	1.7	4	2.2	4	2.2	5	2.1	13	2.2	2	3.6	3	6.8	3	4.6	8	4.9	35	2.2
Total undesirable	27	10.6	25	10.5	35	10.4	87	10.5	11	6.0	13	7.1	16	6.7	40	6.6	6	10.9	4	9.1	4	6.1	15	9.1	142	8.9
Total	253	100	237	100	337	100	827	100	183	100	183	100	236	100	602	100	55	100	44	100	65	100	165	100	1594	100

Table 6. Consumers' Knowledge and Use of USDA Beef Grades

Degree of knowledge	Acquaintance with beef grades		Use as guide in buying beef		Don't use as guide in buying beef	
	Number	% total	Number	% total	Number	% total
Consumers naming 3 or more grades	125	15,8	94	11,9	31	3,9
Consumers naming 2 grades	97	12,3	76	9,6	21	2,7
Consumers naming 1 grade	107	13,5	68	8,6	39	4,9
Consumers naming no grade	462	58,4	--	---	462	58,4
Total answering	791	100,0	238	30,1	553	69,9

There was a direct relationship between the education of the consumers and their knowledge of these grades. Of those consumers who had not gone beyond grade school, only 3,8 per cent named three grades or more, 5,8 per cent named only two grades, 6,7 per cent named only one grade, and 83,7 per cent named no grade. On the other hand, of those consumers who had gone to college 24,0 per cent named three or more grades, 11,8 per cent named two grades, 15,9 per cent named one grade, and 48,3 per cent did not name any grades.

There was an inverse relation between the ages of consumers and their knowledge of grades. Of the consumers under forty years of age, 18,0 per cent named three or more grades, while only 10,6 per cent of those over 60 years of age named three or more grades.

There was a direct relation between income and knowledge of grades. Only 8,7 per cent of the consumers having a gross annual family income of less than \$3,000 named three or more grades, while 22,1 per cent of those with incomes over \$6,000 named three or more grades.

There was a direct relation between knowledge of grades and their use. Of the 125 consumers naming three or more grades, 75,2 per cent used grades as buying guides. Of the 97 consumers naming only two grades, 60,8 per cent used them as buying guides, but only 54,4 per cent of the 107 consumers naming only one grade used it as a buying guide (Table 7).



Table 7. Consumers' Knowledge of USDA Beef Grades by Age Groups, by Educational Levels, and by Income Levels

Consumers	Naming 3 or more USDA grades		Naming 2 USDA grades		Naming 1 USDA grade		Naming no USDA grades		Total consumers answering	
	Number	% age group	Number	% age group	Number	% age group	Number	% age group	Number	% age group
<u>Age Group</u>										
Under 40 yrs.	68	18,0	46	12,2	59	15,6	205	54,2	378	100,0
40-60 yrs.	47	14,7	42	13,2	35	11,0	195	61,1	319	100,0
Over 60 yrs.	9	10,6	4	4,7	10	11,8	62	72,9	85	100,0
Total of all age groups	124	15,9	92	11,8	104	13,3	462	59,1	782	100,0
<u>Educational Level</u>										
	Number	% Ed. level	Number	% Ed. level	Number	% Ed. level	Number	% Ed. level	Number	% Ed. level
Gr. school 1-8 yrs.	4	3,8	6	5,8	7	6,7	87	83,7	104	100,0
High school 9-12 yrs.	59	14,0	58	13,8	55	13,1	249	59,1	421	100,0
Over 12 yrs.	59	24,0	29	11,8	39	15,9	119	48,3	246	100,0
Total of all Ed. levels	122	15,8	93	12,1	101	13,1	455	59,0	771	100,0
<u>Income Level</u>										
	Number	% Inc. level	Number	% Inc. level	Number	% Inc. level	Number	% Inc. level	Number	% Inc. level
Less than \$3000	6	8,7	5	7,2	4	5,8	54	78,3	69	100,0
\$3000 - \$6000	55	13,9	52	13,1	54	13,6	236	59,4	397	100,0
Over \$6000	51	22,1	32	13,9	39	16,9	109	47,1	231	100,0
Total of all Inc. groups	112	16,1	89	12,8	97	13,9	399	57,2	697	100,0

U.S. Choice was the grade most commonly mentioned, accounting for 30.3 per cent of all grades (USDA, Packers', and terms mentioned thought to be grades). U.S. Good was next with 23.7 per cent, and was followed by U.S. Prime, 14.4 per cent. Official USDA beef grades accounted for 84.4 per cent of all "grades" mentioned. All of the USDA grades were named, and in addition a variety of other "grades" that were thought to be USDA grades. Some of these were: letter grades, such as Grade A, AA, AAA, Grade B, C, etc.; number grades, such as Grade No. 1, 2, 3, etc.; descriptive grades, such as Premium, Poor, Best, Superior, Inferior, etc.; and Government Inspected. Letter and number grades accounted for 10.2 per cent of the 881 grades named.



## SUMMARY AND CONCLUSIONS

### PHASE ONE

From interviews with 491 Phoenix consumers in May, 1955 the following conclusions were obtained:

1. Beef is the favorite meat of Phoenix consumers, 87 per cent favoring beef over any other meat, poultry or fish.
2. T-bone steak, round steak, and sirloin steak, in the order named, were the three favorite beef cuts. Fifth in over-all popularity and first among the roasts was chuck roast. Slightly over 10 per cent of the persons interviewed selected ground beef or hamburger as their first preference.
3. Consumers' preferences are conditioned by what they can afford.
4. About two-thirds of the beef purchased for day-to-day use and about half of that bought for frozen storage was obtained from supermarkets.
5. Sixty-four per cent of the 491 consumers interviewed stated that they preferred butcher-service to self-service. Better availability of various cuts and sizes and fresher meat were the major reasons given for preferring butcher service. Convenience and freedom to pick out meat without working with the butcher were of primary importance to those preferring self-service.
6. Wives usually bought the meat in 71 per cent of the families contacted.
7. About half of the people usually plan their meat purchase before going to the market, while the other half generally decide at the store. Price or special sales, availability of cuts desired, or appearance of meat were important factors where meat lists were changed after reaching the store.
8. Seventy-five per cent of the families contacted bought fresh meat either once or twice a week.
9. Eighty-six per cent owned refrigerators, and 21 per cent had home freezers or rented a cold storage locker.

10. Three and four pound roasts were most commonly preferred. A range of weights from two to five pounds accounted for all but eight per cent of the preferences stated.

Weight of roast per person in the family tends to be proportioned to family income.

11. Packages of hamburger weighing one, two, and three pounds were generally preferred. Low income families bought more hamburger per person than did high income families.
12. Leanness is the characteristic most looked for in beef by Phoenix consumers. Bright red color, and freshness were next in importance among those factors looked for by these consumers.
13. When shown colored photographs illustrating high, moderate, and low degrees of marbling in beef, 59 per cent preferred the cut with the least marbling, 18 per cent the moderately marbled cut, and 23 per cent that with the highest degree of marbling.
14. Phoenix consumers definitely prefer beef with white fat. When shown color photographs illustrating differences in color of fat, 63 per cent picked the cut with the whitest fat.
15. Consumers were asked to choose from three pictures showing cuts of Choice, Good, and Commercial beef. Forty-one per cent select U.S. Good as their preference, 32 per cent U.S. Choice, and 27 per cent U.S. Commercial.